

AMENDMENTS TO THE CLAIMS:

Please cancel claims 8, 13, 18, 24, 25, and 32, without prejudice or disclaimer of their subject matter, and amend claims 1, 5, 6, 11, 14, 22, 26, 33, and 34, as indicated below. This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) An annealing furnace, comprising:
 - a processing chamber configured to store a substrate;
 - a susceptor located in the processing chamber so as to load the substrate and having an auxiliary heater for heating the substrate at 650 °C or less, the susceptor having a surface made of quartz;
 - a gas supply system having a variety of gas sources required for a thermal processing on the substrate, the gas sources including one of a reduction gas and a gas containing halogen for removing a native oxide film formed on the substrate;
 - an introduction conduit connected to the gas supply system configured to supply [[the]] a gas in parallel to a surface of the substrate;
 - an exhaust conduit facing the introduction conduit configured to exhaust the gas from the processing chamber;
 - a protective member made of quartz configured to prevent oxidation or corrosion on side and bottom inner walls in the processing chamber;
 - a transparent window located on an upper part of the processing chamber facing the susceptor; and

a main heater configured to irradiate a pulsed light on the surface of the substrate to heat the substrate from the transparent window, the pulsed light having a pulse duration of approximately 0.1 ms to 200 ms and having a plurality of emission wavelengths.

2. (Original) The annealing furnace of claim 1, wherein the main heater is one of a flash lamp and a laser unit having a plurality of laser sources for irradiating with a light having an irradiation energy density in a range of approximately 5 J/cm² to 100 J/cm².

3. (Original) The annealing furnace of claim 1, wherein the gas supply system supplies at least one of an oxidation gas and a nitridation gas for forming an insulating film on the substrate.

4. (Original) The annealing furnace of claim 1, wherein the emission wavelengths include ultraviolet components.

5. (Currently Amended) The annealing furnace of claim 3, wherein the gas supply system supplies ~~one of a reduction gas and a gas containing halogen for removing a native oxide film formed on the substrate prior to supplying~~ one of the oxidation gas and the nitridation gas after removing the native oxide film formed on the substrate.

6. (Currently Amended) A manufacturing apparatus, comprising:
a first cassette chamber to place a wafer cassette for storing a substrate;

a transfer chamber connected to the first cassette chamber, having a transfer robot for transferring the substrate;

a first processing apparatus having a first processing chamber connected to the transfer chamber and configured to store the substrate, a first susceptor located in the first processing chamber so as to load the substrate transferred by the transfer robot, a first introduction conduit supplying a first gas in parallel to a surface of the substrate, the first gas including one of a reduction gas and a gas including halogen for removing a native oxide film formed on the substrate, a first exhaust conduit facing the introduction conduit so as to exhaust the first gas from the processing chamber, a protective member made of quartz configured to prevent oxidation or corrosion on side and bottom inner walls in the first processing chamber, a first transparent window located on an upper part of the first processing chamber, and a first main heater irradiating a pulsed light on the surface of the substrate to heat the substrate from the first transparent window, the pulsed light having a duration of approximately 0.1 ms to 200 ms and having a plurality of emission wavelengths; and

a second cassette chamber to place another wafer cassette storing the substrate transferred from the first processing apparatus by the transfer robot.

7. (Original) The manufacturing apparatus of claim 6, wherein the first main heater irradiates with a light having an irradiation energy density in a range of approximately 5 J/cm^2 to 100 J/cm^2 .

8. (Canceled)

9. (Original) The manufacturing apparatus of claim 6, further comprising:

a second processing apparatus having a second processing chamber connected to the transfer chamber and configured to store the substrate, a second susceptor located in the second processing chamber so as to load the substrate transferred by the transfer robot, a second introduction conduit supplying a second gas to the surface of the substrate, a second transparent window located on an upper part of the second processing chamber, and a second main heater irradiating a light on the surface of the substrate to heat the substrate from the second transparent window and having a plurality of emission wavelengths.

10. (Original) The manufacturing apparatus of claim 9, wherein the second main heater irradiates the light having an irradiation energy density in a range of approximately 5 J/cm^2 to 100 J/cm^2 .

11. (Currently Amended) The manufacturing apparatus of claim 9, wherein the second introduction conduit supplies at least one of an oxidation gas and a nitridation gas for forming a ~~second~~ an insulating film on the substrate.

12. (Original) The manufacturing apparatus of claim 6, wherein the emission wavelengths of the first main heater include ultraviolet components.

13. (Canceled)

14. (Currently Amended) An annealing method, comprising:

introducing at least one of an oxidation gas and a nitridation gas in parallel to a surface of a substrate loaded on a susceptor in a processing chamber from an introduction conduit to an exhaust conduit, the introduction conduit and the exhaust conduit each connected to a top portion of sidewalls in the processing chamber and facing each other, after a pretreatment of removing a native oxide film on the surface of the substrate by supplying one of a reduction gas and a gas including halogen; and

heating the surface of the substrate with a pulse duration of approximately 0.1 ms to 200 ms to perform at least one of oxidation and nitridation.

15. (Original) The annealing method of claim 14, wherein the heating is performed by irradiation of a light having an irradiation energy density in a range of approximately 5 J/cm² to 100 J/cm².

16. (Original) The annealing method of claim 15, wherein the irradiation of the light is performed for a plurality of times.

17. (Original) The annealing method of claim 15, wherein emission wavelengths of the light includes ultraviolet components.

18. (Canceled)

19. (Original) The annealing method of claim 14, wherein the surface of the substrate is heated to a temperature range of approximately 950 °C to 1200 °C when measured by a pyrometer.

20. (Previously Presented) The annealing method of claim 14, wherein the heating is selectively performed by aligning a stencil mask having an opening above an upper side of the substrate.

21. (Original) The annealing method of claim 14, wherein the heating is performed by doping one of halogen, oxygen and nitrogen to a portion of the substrate.

22. (Currently Amended) A manufacturing method of an electronic device, comprising:
cleaning a substrate by a wet processing;
loading the substrate on a first susceptor in a first processing apparatus;
introducing a first gas in parallel to a surface of the substrate loaded on the first susceptor from an introduction conduit to an exhaust conduit, the introduction conduit and the exhaust conduit each connected to a top portion of sidewalls in the processing chamber and facing each other; and

performing a first processing ~~of at least one of oxidation and nitridation~~ by heating a surface of the substrate with a pulse duration of approximately 0.1 ms to 200 ms, the first processing removing a native oxide film on the substrate by use of one of a reduction gas and a gas containing halogen as the first gas.

23. (Original) The manufacturing method of claim 22, wherein the heating of the first processing is performed by irradiating a first light having an irradiation energy density of approximately 5 J/cm^2 to 100 J/cm^2 .

24. (Canceled)

25. (Canceled)

26. (Currently Amended) The manufacturing method of claim 22, wherein the surface of the substrate is heated to a temperature range of approximately ~~[[950]]~~ 900 °C to 1200 °C when measured by a pyrometer.

27. (Original) The manufacturing method of claim 22, further comprising:
loading the substrate, which has been subjected to the first processing, on a second susceptor in a second processing apparatus;
introducing a second gas to the substrate loaded on the second susceptor; and
performing a second processing by heating the surface of the substrate.

28. (Original) The manufacturing method of claim 27, wherein the heating of the second processing is performed by irradiating a second light with a pulse duration of approximately 0.1 ms to 200 ms having an irradiation energy density of approximately 5 J/cm^2 to 100 J/cm^2 .

29. (Original) The manufacturing method of claim 27, wherein the second processing is to form a second insulating film by use of at least any one of an oxidation gas and a nitridation gas as the second gas.

30. (Original) The manufacturing method of claim 28, wherein the irradiation of the second light is performed a plurality of times.

31. (Original) The manufacturing method of claim 23, wherein emission wavelengths of the first light include ultraviolet components.

32. (Canceled)

33. (Currently Amended) The manufacturing method of claim 27, wherein the surface of the substrate on the second susceptor is heated by an irradiation of a second light to a temperature range of approximately 950 °C to 1200 °C when measured by a pyrometer.

34. (Currently Amended) The manufacturing method of claim [[32]] 33, wherein the heating of the second thermal processing is performed by the irradiation from a main heater having a plurality of emission wavelengths.